

### **ABSTRACT OF THE DISCLOSURE**

A system for creating a patterned polarization compensator (550) has a retardance characterization system (560) for optically scanning the spatially variant retardance of a spatial light modulator (210). A compensator patterning system (565) writes a spatially variant photo-alignment pattern on a substrate (555) of a polarization compensator. The patterned polarization compensator is completed by a process that includes providing a photo-alignment layer onto which spatially variant photo-alignment layer is formed, providing a liquid crystal polymer layer onto the photo-alignment layer, and then fixing the liquid crystal polymer layer to form a spatially variant retardance pattern into the structure of the patterned polarization compensator.